



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,186	10/31/2003	Yukihisa Takeuchi	789_119	1067
25191	7590	03/08/2006	EXAMINER	
BURR & BROWN PO BOX 7068 SYRACUSE, NY 13261-7068			ROY, SIKHA	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/699,186

Applicant(s)

TAKEUCHI ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 13-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1003, 0104, 0904, 0804, 0704, 0404, 0304, 0204</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of Species I, claims 1-12 and 19-24 in the reply filed on December 7, 2005 is acknowledged. The traversal is on the ground(s) that that there is not a serious burden on the Examiner. This is not found persuasive because Species II, claims 13-18 are directed to a device which recites limitation of electron emitters formed as film which is not in the first Species and hence the two Species are mutually exclusive. The Restriction Requirement is hence deemed proper and is therefore made FINAL.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The form and legal phraseology often used in patent claims, such as "means", "comprises" and "said," should be avoided.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2879

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 -4 and 7 -10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,184,610 to Shibata et al.

Regarding claim 1 Shibata discloses (Figs. 10,13 column 21 lines 24-36 column 25 lines 17-38) a display device comprising a housing having a first board (rear plate) 111 and plurality of modules each having plurality of electron emitters 104 arrayed on a second board (electron source substrate)1, the modules being electrically connected to each other and the modules are sealed in a vacuum in the housing.

Claim 7 essentially recites the same limitations of claim 1, the modules being broadly considered as chips.

Regarding claim 2 Shibata discloses (Fig. 10) the housing has a transparent plate 113 facing the first board 111, the transparent plate supporting on its surface thereof facing the first board an electrode (anode)115 for producing electric field between the electrode and the emitters and phosphor 114 disposed on the electrode wherein the electrons emitted from the emitters impinge on the phosphor thereby emitting light.

Claim 8 essentially recites the same limitation as of claim 2 and hence is rejected for the same reason.

Regarding claim 3 Shibata discloses (Figs. 1B, 6 column 5 line 62, column 8 lines 9-12) the electron emitters comprising an emitter section 5 made of dielectric

material (carbon and/or carbon compounds), a first electrode 2 and a second electrode 3 disposed in contact with the emitter section (via the conductive film 4) wherein a drive voltage is applied between the first electrode 2 and the second electrode 3. The recitation of 'a portion of the emitter section has polarization reversed or changed to emit electrons' has not been given patentable weight because it is considered an intended use recitation. It has been held that a recitation with respect to the manner in which the claimed device is intended to be used does not differentiate the claimed device from a prior art device satisfying all of the claimed structural limitations.

Regarding claim 4 Shibata discloses the first and second electrodes are disposed in contact with the principal surface of the emitter section 5 with a slit defined between the first and second electrode the emitter section being partly exposed through the slit.

Regarding claim 6 Shibata discloses the emitter section formed of carbon and/or one or more carbon compounds which are electrostrictive materials.

Claims 9, 10 and 12 essentially recite the same limitations of claims 3,4 and 6 respectively and hence are rejected for the same reasons.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2879

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent 6,184,610 to Shibata et al. and further in view of JP 08111166 to Shimada et al.

Claims 5 and 11 differ from Shibata in that Shibata does not exemplify the first electrode disposed on the first surface of the emitter section and the second electrode disposed on the second surface of the emitter section.

Shimada in same field of endeavor discloses (Fig.1 English translation sections [0010],[0018]) a display comprising a substrate 1, first electrode 4 disposed on the first surface of the dielectric emitter section 3 and the second electrode 2 disposed on the second surface of the emitter section, alternating current pulse power provided between the two electrodes. Shimada further teaches this configuration provides a display with high electron emission current density in pulse with low operating voltage and flat surface cathode structure with little property fluctuation and property degradation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the first and second electrodes of Shibata to be one on the first surface and the other on the second surface of the emitter region as taught by Shimada for providing a display with high electron emission current density in pulse with low operating voltage and flat surface cathode structure with little property fluctuation and property degradation.

Claims 19 –22 and 24 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent 6,184,610 to Shibata et al.

Regarding claim 19 Shibata discloses the claimed invention except for each module having plurality of electron emitters being vacuum sealed and then arrayed on the first board. It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the vacuum sealed modules instead of having all the modules vacuum sealed as one piece since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. Furthermore the Examiner notes that having each module separately vacuum sealed provides the benefit of simple manufacturing of individual module and replacing any defective one.

Claims 20-22 and 24 essentially recite the same limitations of claims 2-4,6 respectively and hence are rejected for the same reasons (see rejection of claims 2-4 and 6).

Claim 23 is rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent 6,184,610 to Shibata et al. and further in view of JP 08111166 to Shimada et al.

Claim 23 differs from Shibata in that Shibata does not exemplify the first electrode disposed on the first surface of the emitter section and the second electrode disposed on the second surface of the emitter section.

Shimada in same field of endeavor discloses (Fig.1 English translation sections [0010],[0018]) a display comprising a substrate 1, first electrode 4 disposed on the first

surface of the dielectric emitter section 3 and the second electrode 2 disposed on the second surface of the emitter section, alternating current pulse power provided between the two electrodes. Shimada further teaches this configuration provides a display with high electron emission current density in pulse with low operating voltage and flat surface cathode structure with little property fluctuation and property degradation.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the first and second electrodes of Shibata to be one on the first surface and the other on the second surface of the emitter region as taught by Shimada for providing a display with high electron emission current density in pulse with low operating voltage and flat surface cathode structure with little property fluctuation and property degradation.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,650,795 to Banno et al. discloses electron source and image forming device with modules with plurality of electron emitters and different emission characteristics. U.S. Patent 4,904,895 to Tsukamoto et al. discloses electron emission device with dielectric emitter region and two electrodes in contact with the emitter region.



Art Unit: 2879

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Sikha Roy*

Sikha Roy  
Patent Examiner  
Art Unit 2879